

NASA TECH BRIEF



This NASA Tech Brief is issued by the Technology Utilization Division to acquaint industry with the technical content of an innovation derived from the NASA space program.

Hot-Air Soldering Technique Prevents Overheating of Electrical Components

The problem: Difficulties were encountered in soldering fixed ceramic feed-through capacitors to gold-plated aluminum chassis, using oven and hot-oil-bath soldering methods.

The solution: Use of hot-air gun with small outlet orifice to localize the heat around the soldering area.

How it's done: The area around the chassis mounting holes is cleaned and fluxed. A ring of solder is placed around the capacitor, which is then inserted into the mounting hole so that the solder ring is in contact with the chassis. Hot air, from a hot-air gun with an 0.75-inch diameter outlet orifice, is directed onto the chassis in a circular motion around the capacitor to assure uniform temperature distribution. The outlet of the heat gun should be kept approximately three inches from the chassis during the soldering. Application of the heat is stopped immediately after the solder ring has melted. A minimum outlet

air temperature of 500° F. was found to be desirable.

Notes:

1. On completion of the work, it is important to check the capacitor with a capacitance bridge for heat damage.
2. The hot-air technique should prove useful for the soldering of most types of heat-sensitive components. It would have the advantage of being cleaner than flame soldering, but it would also be slower and more cumbersome. By using an inert gas rather than air, oxidation might be prevented in certain critical applications.

Patent status: NASA encourages commercial use of this innovation. No patent action is contemplated.

Source: Hughes Aircraft Company under contract to Goddard Space Flight Center (GSFC-91)



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This NASA Tech Brief is based on the Technology Utilization Division's research and development work in the field of space technology.

Development of a New Type of Solar Cell

The development of a new type of solar cell is a major objective of the Technology Utilization Division's research and development work in the field of space technology. The new type of solar cell is a monocrystalline silicon cell, which is a type of solar cell that is made from a single crystal of silicon. This type of solar cell is known for its high efficiency and long life. The new type of solar cell is being developed by the Technology Utilization Division's research and development work in the field of space technology. The new type of solar cell is a monocrystalline silicon cell, which is a type of solar cell that is made from a single crystal of silicon. This type of solar cell is known for its high efficiency and long life. The new type of solar cell is being developed by the Technology Utilization Division's research and development work in the field of space technology.

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